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Date: December 29, 2006 /Jessica Sexton/
Jessica Sexton

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:			
Applicant(s):	Peter Merchant	Examiner:	Seung H. Lee
Serial No:	09/546,962	Art Unit:	2876
Filing Date:	April 11, 2000		

Title: PIEZOELECTRIC SCAN SYSTEM

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Dear Sir:

Appellant's representative submits this Reply Brief in response to the Examiner's Answer dated October 31, 2006. In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [TELNP202USA].

REMARKS

Claims 1-6, 8-10, 12-18, 20, 21 and 23 are currently pending and are presently under consideration. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments herein. In particular, the following comments address deficiencies contended in the Examiner's Answer to applicant's Appeal Brief.

I. Regarding the Rejection of Claims 1-6, 8-10, 12-18, 20, 21 and 23 Under 35 U.S.C. §103(a)

The Examiner incorrectly maintains the rejection of claims 1-6, 8-10, 12-18, 20, 21 and 23 under 35 U.S.C. §103(a) as being unpatentable over Brobst, *et al.* (U.S. 6,053,409) in view of Tawara (U.S. 5,710,418). This rejection should be withdrawn for at least the following reasons. The cited references when combined neither teach nor suggest all the claim features. Moreover, the references when combined render the primary reference Brobst, *et al.* unsuitable for its intended purpose.

> To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, **there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings**. Second there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** *See* MPEP §706.02(j).

The claimed subject matter relates to a scanner and reader that may be economically implemented by minimizing rotating or movable parts. This is achieved by employing a unique shape controlling system to move the laser beam across the bar code. As recited in the independent claims 1, 15, 21 and 23: ***the shape controlling system selectively varying the shape of the reflector, whereby the second portion scans across at least a portion of the target.*** Thus, the claims recite an invention that is able to provide a non-mechanical, low cost scanning system (See for example lines 3-9 at page 3). Brobst, *et al.* neither teaches nor suggests such novel

aspects wherein a shape controlling system varies the shape of a reflector such that this reflector scans the beam across the bar code. Tawara does not make up for this deficiency.

Rather, as conceded by the Examiner, Brobst, *et al*. employs a deformable mirror assembly such as a piezoelectric material reflector for varying focal points by shaping the piezoelectric material therewith and the scanning beam is produced by either a rotating polygon scan mirror or the oscillating mirror. (*See* Examiner's Answer page 5 lines 5-8). The Examiner contends that, "Tawara does not teach *the shape controlling system and the second portion of the light beam scans a portion of the target.* However, such teachings are taught/shown by Brobst, *et al.* wherein Brobst, *et al.* discloses the deformable mirror assembly serving as the shape controlling system for varying the shape of the reflector as shown in Fig.6 *and* the polygon scan mirror or the oscillating scan mirror producing the second portion of the light beam that scans the target." (*See* Examiner's Answer page 7 lines 10-16). This is different from the system described in appellant's claims wherein it is recited that ***the shape controlling system selectively varying the shape of the reflector, whereby the second portion scans across at least a portion of the target.*** Hence, in accordance with the subject claims the shape controlling system and the scanning of the second portion of the light beam are related as apparatus and the function it performs. In contrast, a deformable mirror assembly of Brobst, *et al.* performs a different function of varying the focus of the light beam by varying the shape of the reflector and does not perform the function of scanning the beam across the target (*See* Brobst, *et al*. col. 5 lines 5-7). That is, Brobst, *et al.* discloses different structural and functional interrelationships than the claimed apparatus.

In this context, it is submitted that the Examiner has cited incomplete sentences from the Appeal Brief filed August 26, 2006 giving erroneous implications in the attempt to isolate particular features of Brobst, *et al*. to read on the claimed subject matter. For example, in the Examiner's Answer at page 5 lines 1-4, it is stated that "…appellant's claimed invention provides a shape controlling system that selectively varies the shape of a reflector having an arcuate reflective surface whereby a light beam from a light source can be projected light beam onto a target….It is submitted that Brobst, *et al.* does not teach or suggest this aspect of the recited claim". At the cited portion (Appellant's Appeal Brief filed August 26, 2006 page 6 lines 3-12) it is stated that, "Thus, the primary document provides a deformable mirror assembly that focuses a beam at disparate focal points wherein a scanning beam is produced by either a

rotating polygonal scan mirror or an oscillating mirror. In contrast, appellant's claimed invention provides a shape controlling system that selectively varies the shape of a reflector having an arcuate reflective surface whereby a light beam from a light source can be projected onto a beam expander such that the beam expander reflects the projected light beam onto a target. *In other words, the shape controlling system is employed to vary the shape of the reflector such that the light beam, albeit via reflection off the beam expander, is projected and traverses across the face of the target. It is submitted that Brobst, et al. does not teach or suggest this aspect of the recited claim.* " Hence, it was argued that Brobst, *et al.* does not teach or suggest a shape controlling system that varies the shape of the reflector to project *and* sweep a light beam such that it traverses across the face of the target. Further, as agreed by the Examiner, this deficiency of Brobst, *et al.* is not overcome by Tawara.

Moreover, the Examiner rejected the claims on the contention that, "It would have been obvious to adapt the cylindrical mirror as suggested by Tawara to substitute the polygonal scan mirror or the oscillating scan mirror of Brobst, *et al.* to produce the barcode reader simply and inexpensively." (*See* Examiner's Answer page 8 lines 12-14). It is respectfully submitted that the proposed substitution would render Brobst, *et al.* inoperable for its intended purposes of both varying the focus and of sweeping the light beam for two reasons:

The first reason being that the cylindrical beam expander of Tawara would expand the beam to form a horizontal line like shape and not a focused point as required by Brobst, *et al.* (*See* Tawara Abstract lines 3-6 and col. 5 lines 9-10, and Abstract of Brobst, *et al.* lines 1-2 and col.4 lines 26-28) (*See* Response to Final Office Action dated 4-7-06 second paragraph on page 3 and Appeal Brief filed August 26, 2006 page 7 lines 1-10). In this context, it is submitted that the Examiner makes contradictory statements regarding the functionality of the oscillating mirror in the Examiner's Answer dated October 31, 2006. For example, on page 5 lines 10-12 it is stated that, "Brobst, *et al*. also teaches the *polygon scan mirror or* <u>*the oscillating mirror serving as a beam expander*</u> *for reflecting the light beam onto a target* wherein the light beam is provided via the deformable mirror assembly", while at page 7 line 21 - page 8 line 4 it is stated that, "The Examiner respectfully disagrees with the appellant wherein Brobst, *et al*. discloses a piezoelectric deformable mirror can be located between the light source and a flat faceted scan mirror for increasing the depth of field for scanning or providing multiple focal points (see Abstract) *and* <u>*the scanning beam (138) is always focused on the target using particular facet*</u>

such as the oscillating mirror as shown in figure 5A." It is respectfully submitted that the same oscillating mirror cannot be used both as a beam expander and as a facet to focus the scanning beam as stated by the Examiner, and that it would only be able to perform one of these functions as expanding a light beam is an effect opposite to focusing the light beam. As seen from Fig.5 and Fig. 5A of Brobst, *et al*. and as stated by on page 8 of the Examiner's Answer the oscillating mirror or the polygon scan mirror serves to focus the light beam on the target and replacing it with a light expander comprising a cylindrical mirror as taught by Tawara (*See* Tawara col.5, lines 9-10) would render the apparatus of Brobst, *et al.* unsuitable as a focusing apparatus (*See* Brobst, *et al.* col.2, lines 5-6). The second reason being that from the Examiner's comments at page 7, line 21 - page 8, line 4 cited *supra,* replacing the polygonal scan mirror or the oscillating mirror of Brobst, *et al.* with the cylindrical mirror of Tawara would disable the apparatus of Brobst, *et al.* from scanning the light beam across the target. This is because, as stated by the Examiner, Brobst, *et al.* relies on the different facets of a motor-actuated mirror to focus the scanning beam across the target (*See* Brobst, *et al.* col. 2, lines 9-12 and col.3, lines 17-27) whereas a cylindrical mirror is not faceted and would instead be generally smooth and rounded all over.

CAFC has maintained that there is no suggestion or motivation to make the proposed modification if the proposed modification would render the reference invention being modified unsatisfactory for its intended purpose. (In re Gordon, 733 F.2d 900, 902, 221, USPQ1125, 1127 (Fed. Cir. 1984)). As stated by the Federal Circuit, "If references taken in combination would produce a 'seemingly inoperative device', we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facie case of obviousness." (In re Sponnoble, 405 F.2d 578, 587, 160 USPQ 237, 244 (CCPA 1969)). Therefore, it was held that, references that teach away cannot serve to create a prima facie case of obviousness. (In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1131, 1132 (Fed. Cir. 1994)).

Thus it is submitted, a *prima facie* case of obviousness has not been established against appellant's claimed invention because a combination of Brobst, *et al.* and Tawara does not teach or suggest all limitations recited in the subject claims. Further, the subject invention would not have been obvious to one ordinarily skilled in the art from the proposed combination, sufficient to impel him/her to do what the appellants have suggested, since the combination renders Brobst,

et al. unsuitable for its intended purpose. Accordingly, reversal of this rejection with respect to independent claims 1, 15, 21, and 23 (and associated dependent claims) is respectfully requested.

II. Conclusion

The subject application is believed to be in condition for allowance in view of the above comments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [TELNP202USA].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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